

QUIVIRA

NARRATIVE REPORT

JANUARY - DECEMBER 1965

QUIVIRA NATIONAL WILDLIFE REFUGE

STAFFORD, KANSAS

PERSONNEL

Refuge Manager - - - - - Joshua J. Harman
Assistant Refuge Manager - - - - Ronald S. Sullivan
Refuge Clerk - - - - - Wayne E. Dale
Maintenanceman - - - - - Earl Miller
Maintenanceman - - - - - Darrell Keesling
Laborer, Farm (WAE) - - - - - Harvey Keesling

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NARRATIVE REPORT

JANUARY 1 to DECEMBER 31, 1965

I. GENERAL

A. Weather Conditions.

<u>Month</u>	<u>Snow</u>	<u>Precip.</u>	<u>Ave. Precip.*</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
Jan.	4.0"	.67"	.68"	70°	9°
Feb.	2.1	1.36	.91	68	-3
March	T	.12	1.21	72	9
April		2.34	2.39	89	29
May		4.98	3.90	89	39
June		9.30	3.80	93	50
July		1.70	3.03	101	55
Aug.		1.38	2.90	98	56
Sept.		4.05	1.81	94	39
Oct.		1.84	1.33	93	33
Nov.		T	.86	76	21
Dec.	<u>11.0</u>	<u>3.51</u>	<u>.81</u>	<u>74</u>	<u>9</u>
Totals	17.1"	28.25"	23.63"	Extremes 101°	-3°

*Ave. for period 1931 - 1952 at Hudson, Kansas. Figures taken from U. S. Weather Bureau station at Hudson, Kansas.

The year averaged out rather mild and moist. Precipitation totaled out 1.29" (there is a slight variance between our figures and the USWB) above the 21 year average established by the local U.S.W.B. station. The year started with typical continental weather patterns prevailing; cold fronts blasting through weekly, alternating with moist SW winds which dumped more snow with the next "norther". Spring came late, temperatures averaging 10 - 15° below normal into March accompanied by several days of 40 MPH wind. Wind movement remained high, but by mid April temperatures had soared and at times touched the 80's. The rains came then and temperatures began to alternate from unseasonably warm to unseasonably cool - and wet at both extremes. After an 11" rainfall in June precipitation slacked off, but the humidity remained fairly high for most of the summer. Summer temperatures were seasonal to mild and wind was only periodic. Slow drizzles and light showers were common during the mild fall and winter was practically non-existent with the exception of a heavy wet snow in mid December. A capsule report would read "mild and moist".

B. Habitat Conditions.

1. Water. Water conditions have been more than satisfactory all year. We came into the year with all units holding at a desirable

level and the future looked rosy. Moisture remained in good supply and conditions were ideal until mid June when a prolonged deluge sent water roaring down Rattlesnake Creek. This raised the Little Salt Marsh (Unit 5) almost to the dike tops and put nearly two feet of water over the emergency spillway which allowed it to plunge back into the main supply canal. As much water as possible was shuttled back into the creek downstream, but "stop-log" structures were too small to handle it and were washed out along with several dikes which were cut. This put a kink in management for the rest of the year and prohibited the filling of new units completed in the summer and fall. All was not lost, though, as some units remained operable and the relatively abundant moisture kept many small pot-holes supplied. With the year's end we have a wealth of moisture, but our damaged structures are still out of action preventing their use and the use of new units.

2. Food and Cover. Food and cover remained abundant for wintering populations, although had our peak numbers remained much longer some birds may have been on short rations. Winter snow cover forced the birds into our milo fields to feed on plentiful standing grain and as the snow melted they moved to the green wheat fields. Abundant spring moisture put the heavily grazed wheat back in good shape as the migration passed on northward. The moisture also brought a good crop of new grasses which developed a beautiful crop of seed heads. Seed heads ripened slowly to supply a moderate amount of feed over a considerable length of time and prevented the usual "feast or famine" for migrants arriving before the wheat is tall enough to graze. Aquatics were good in the Big Salt Marsh and emergents showed some promise in a few of the inoperable new ponds.

Lush grass growth and abundant seeds furnished plentiful feed for upland birds while good forb and young cottonwood growth kept our deer herd sleek and fat. The only fly in the ointment of food and habitat was the non-controlability of several units which would have been useful for local broods and early migrants.

II. WILDLIFE

A. Migratory Birds.

We went into the year with nearly three times the number of Canada geese (Branta canadensis) as last year and five times the white-fronts (Anser albifrons). The numbers rose steadily for both species to hit a peak the first week of March - one and two weeks later respectively than last year, however the peak was considerably higher than last year for Canadas. Canadas peaked nearly twice as high as last spring, but white-fronts dropped about 3,000. Both were present in about equal numbers. The last Canadas moved out about the last of April, a pair having stayed after the mass exodus a month earlier. The last white-fronts left at the end of March. Both species were again seen the first week of October - the same as last year - when 300 Canadas and half as many white-fronts sailed in from northerly climes. These were considerably more numerous than the 200 and three respectively for last year. White-fronts leapt to over 400 in two weeks, but then dwindled to muddle around the half hundred mark until

December when they started a steady climb and ended the year at about 200. Canadas showed a steady rise to about 5,000 at the year's end - about 2/3 more than at the end of 1964. White-fronts were about the same as last year.

Our cannon-net trapping program continued from last year, but geese failed to respond to our baiting attempts. We did manage to band 164 mallards and pintails and a sprinkling of widgeons and green-winged teal with two shots of the net. A walk-in trap netted 350 blue-winged teal and about 30 mallards in late summer.

164
350
30
544

Mallards peaked two weeks earlier - first week of January - than last year and were better than half again more numerous, while pintails topped last spring's peak by half again as many. Sprigs peaked a week earlier than last year - first week of March.

The spring migration dwindled as per the usual pattern, but we went into the nesting season with double last year's mallards and about ten times the blue-winged teal. Nesting started with a bang, averaging about 2 pairs to each five acres of water, but the mid-June flood hit before a large percentage of the clutches had hatched. Renesting efforts were noticed in early July and we ended the season in pretty good shape - bringing out about 700 young blue-wings and 200 mallards.

The fall increase in mallards started to dribble through in early August - on schedule with last year - while blue-wings came a month behind schedule - third week of August. Numbers increased to a peak similar to last year with the exception of mallards, which topped out a couple of thousand lower. Fall peaks were about on schedule.

Shore birds and waders moved in with a passion in the spring and waxed strong in the wet summer. Avocets, great blue herons, green herons and American bitterns came forth in strong numbers and we even registered about a score of black-crowned night herons. Smaller species included the ubiquitous killdeer, a more than sufficient supply of snowy plovers, semi-palmate plover, greater and lesser yellowlegs, white-rumped sandpiper and a few knots, dowitchers and Wilson's snipe. There were occasional unconfirmed reports of woodcock. Wilson's phalarope spun myriad circles in our ponds and we recorded a couple of solitary sandpipers.

In the "unusual bird" category we held a couple of cinnamon teal drakes all summer. A pity we had no females. As reported of great interest in last year's report, we played host to a red-breasted goose (*Branta ruficollis*) through January and February. This Asian bird was seen several times with a small flock of Canadas and at times with some white-fronts.

The annual (for the last couple of years) whooping crane visit occurred on October 30 and 31. Three birds, two adults and one young, were spotted on the Big Salt Marsh and followed a short distance south-westerly before we ran out of roads and lost them. Our 1964 whooper visit was on November 1.

Sandhill cranes didn't come through with the bang of last year. Our first sighting was earlier than 1964 - Oct. 1 - and the last sighting was two weeks later than last year - Dec. 14. The peak number was 750 as compared to 1850 for 1964, and the total counted was 3,099 to last year's 5,942.

Mourning doves fared better this year than last when consideration is given to numbers present at the first of the season. The extreme drought of 1964 cut into our 1965 breeding population, thus we went into the year slightly understocked. The nesting season hit with a bang and young birds were predominant for the rest of the year. The heavy rains of mid-June knocked out very few nests, but the unseasonably cool weather following slowed renesting. This had no adverse effect on the total population and as nest predation was practically nil we came out with about the same total population as last year.

B. Upland Game Birds.

The breeding population of bobwhite and ring-necked pheasant was lower than last year because of the relatively poor nesting success of 1964. The early season for 1965 gave promise of a good hatch-off, but the old flood bug-a-boo has us revising our estimates downward during the summer months. Some broods were off by flood time and for a time it appeared that those which were flooded would not be replaced by renesting. This is reflected in our summer NR forms. However, we have no formal census of upland birds and as the fall season progressed we realized that the coveys making an appearance indicated a higher population. Our present estimate of bobwhite and pheasant numbers is the highest for several years. (see NR forms). With the moist summer, feed-seeds were plentiful thus weather only played a small part in limiting population. Predation was about normal as the predator population has been practically static for some time. Unless we have a mushrooming of these animals we don't expect them to play an important role in game bird survival for some time to come.

C. Big Game Animals.

White-tailed deer (Odocoileus virginianus) are our only large game animals. No formal surveys are made, but frequent casual sightings indicate a considerable increase since staffing of the refuge. Seldom are deer sighted without one or two yearlings or young of the year in the group. This indicates a good rate of increase and - along with tracks and browse sign - indicates that we have a total population of 75 - 80. While this number is similar to that reported last year we do not believe we suffered losses equal to the year's production. We feel that the increasing population has diffused into the pasture lands and shelter belts near the refuge. Appearances are that we now have a near optimum population. Sightings of five or six animals are a weekly occurrence and fresh tracks are a daily sight in the headquarters area. The state of Kansas had a deer season (first in 50 years) in the fall of 1965. The area around Quivira was open only to bow hunters and no reports were received of animals collected in the immediate area, however, reports trickled in of several specimens being downed by would-be Howard Hills in the surrounding counties. Several animals

reportedly weighed in the neighborhood of the 300lb. mark. Local reports of mule deer (Odocoileus hemionus) are yet to be substantiated.

D. Fur Animals, Predators, Rodents and Other Mammals.

Our fur bearing population is composed mainly of opossum (Didelphis virginianus), raccoon (Procyon lotor), striped skunk (Mephitis mephitis), badger (Taxidea taxus), and an occasional mink (Mustela vison). These animals are holding to a fairly static population, the skunks being most numerous. The low slot is filled by his cousin, the mink, while the giant of the clan, the badger, is only slightly more numerous. Long-tailed weasel (Mustela frenata) held steady at a very low level and have not shown any change in several years. Cotton-tails (Sylvilagus floridanus) held about steady while black-tailed jack-rabbits (Lepus californicus) dwindled to about half of last year's population. Black-tailed prairie dogs (Cynomys ludovicianus) increased by about 25% in spite of the loss of one town to construction work. Land acquisition has taken a town of about 15 houses into the refuge, but this is not enough to explain the increase. Much of the increase is by natural multiplication. Land acquisition is expected to bring in yet another town in 1966. Fox squirrels (Sciurus niger) remained static, our few miles of shelter belts being the only suitable habitat. Beaver (Castor canadensis) have declined by about 35%. This is not surprising even in the light of the fine water situation of last summer. Beaver have pretty well trimmed out the suitable sized cottonwoods near Rattlesnake Creek, their only location on the refuge, and have been moving up and down the creek and possibly over a few miles to the Peace Creek drainage. We have recently seen some evidence of a colony establishing itself several miles downstream on Rattlesnake. The situation is similar with muskrat (Ondatra zibethicus). These rodents dropped to about 1/5 of their 1964 population even though emergent vegetation was considerably better than last year. With our new ponds coming into production we expect a strong increase before many years.

Although the coyote (Canis latrans) population has decreased by about 1/3 in the last year, daytime sightings are still not uncommon events. A nightly chorus rises from the shelterbelt just west of the residential area where an old lady whelped last spring. Sightings are usually along roadsides as our tall grass allows only an infrequent glimpse of a bounding back or alertly frozen ears poised for the escape. No control work is needed as our animals easily range out onto private land. Those straying off the refuge are readily attacked by the very-ready stripped-down "coyote buggies" and hordes of bounding hounds. Local stockmen are becoming convinced that these coyote hunters are a bigger pain than old Canis 1.

The usual "new refuge" stock of feral house cats appears to have withered and died. Most animals are now seen in the vicinity of a neighbor's house, thus it would not be wise to attempt to eliminate these felines.

E. Eagles, Hawks, Owls and Crows.

At the end of the report period actual count showed 31 eagles. This

is approximately what we had at the same time last year, but a count last February showed 56 bald eagles and 6 golden eagles. Proportions of bald to golden run slightly more to the white heads this year - only one golden eagle being confirmed. Golden were spotted on three occasions, but it is likely this was the same bird three times rather than three birds once each. As with last year, we are leaning heavily toward immature birds. This has been the story for the last few years and it leads one to expect an increase in use as these birds mature and nest and the juveniles adopt the migratory patterns of their parents. However, the increase has not materialized. This may be due to the fact that immature birds traditionally migrate farther southward than adults, thus as our birds mature they stop north of the refuge.

All predacious birds pretty well followed the established annual pattern in population trends. The period started with a seasonal population of American rough-legged hawks and an odd ferruginous rough-leg. Most common were harriers or marsh hawks for most of the cold season, followed by a seasonally heavy population of migrating sparrow hawks in the spring. A half dozen of these kestrels stayed with us through the summer. Swainson's hawks began to drift in during the early spring days and gradually replaced the harriers and rough-legs for the summer months. Mississippi kites moved in as per schedule in mid-spring and rose to about 1/4 more birds than last season. "Ole Miss" brought off about half a dozen nests of young with success, hunted the headquarters area intensively, and moved out on schedule in the late summer and early fall weeks. The odd red-tailed hawk, the last of our common Buteos, moved in to hunt the refuge in the summer months and one or two non-conformists hung around in to the colder weather months. The fall migration of sparrow hawks moved in to push the tail end of the summering Swainson's out and was pretty well coordinated with the return of the marsh hawk. American rough-legs followed these a couple of weeks later to be followed near the end of the year by a couple of ferruginous rough-legs. Prairie falcons, always a comparatively rare visitor, were in shorter supply this season than last, and duck hawks failed to be recorded this time. Duck hawks traditionally show more often on the state operated Cheyenne Bottoms area about 30 miles north of Quivira. Cooper's hawks and sharp-shinned hawks apparently read the record books and held true to form population-wise this year. One large Cooper's hawk periodically works the shelterbelt behind the office and plays hob with the serenity of our "pet" quails. We have yet to see him (or her) make a catch.

We seem to be holding a static population of great horned owls and one regularly raises the hackles of the local domestic canines by "whooing" from the trees behind the residential area. Short-eared owls, while still probably as numerous as last year, have not been sighted so frequently, and screech owls have not been heard so often, either. Burrowing owls continue to glare at all vehicles in the vicinity of the prairie dog towns in about the same numbers as years gone by.

Crows stuck to the annual pattern, being relatively low in the winter and summer months and very abundant in the spring and fall. Last year

The roost flyway led them directly over the new residential area, but they seem to be slightly spooked by the earth-bound intruders this year and moved their route a few hundred yards to avoid civilization.

F. Other Birds.

Our song bird infestation was typically "great plains", running heavily to various sparrows and meadow larks. A new bird feeder astern of the office building is now giving opportunities for more frequent and interesting "dicky bird" observations. One observation of interest was the complete rout of a blue jay by a rather bellicose bobwhite. A covey of quail was partaking of scattered goodies when this obtrusive jay invited himself to the feast. One old bob took it personally and set out to remove the gutty fellow. With a great flourish of feathers and righteous indignation he did just that. The jay, demonstrating determination for equal rights, sidled quietly back to the edge of the scattered wheat and with a weather eye on the quail, did manage to peacefully integrate the feed station.

G. Fish.

Last summer (1964) saw a complete drying of all our pools and the resulting disappearance of all species. With rising waters our population has regained its former stature and a fall sampling of the Little Salt Marsh and Rattlesnake Creek by a Fisheries Services representative showed a fairly decent population of several game species. Most common were channel cat, flatheads and bullheads. A couple of types of sunfish were found amongst the mass of carp, shad and minnows which answered the call of the rotenone.

H. Reptiles and Amphibians.

Although various species of Crotalus are found within a few miles of the refuge in any direction, none occur here. Our only poisonous snake is the western massasauga (Sistrurus catenatus), which is usually more man-shy than the summer engineers and construction workers were snake-shy. These intrepid herpetologists reported beaucoup rattlesnakes during the warm months, but they usually turned out to be hog-nosed snakes and bull snakes (Heterodon spp. and Pituophis sayii). Garter snakes (Thamnophis spp.) and whip snakes (Coluber spp.) along with some water snakes (Natrix spp.) filled out the list of commonly seen snakes for the season. Ornate box turtles (Terrapene ornata), musk turtles (Sternotherus odoratus) and mud turtles (Kinosternon subrubrum) were monotonously common on the roadsides and dikes, while Chelydra serpentina (common snapper) and soft shelled turtles (Amyda spp.) sunned on the dikes and rip-rap rocks.

I. Disease.

No diseased birds or mammals have been noted or reported.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development & Maintenance.

The second summer's construction work was completed on refuge development. In this year's work was the completion of water units 28,29,30,48,49,61 and 63; 2 3/4 miles were added to the west lateral of the main canal. Also water delivery ditches were completed for the above water units as well as diversion structures in the west lateral canal and draining structures for the units. To date 23 major water units are complete with a potential surface acreage of 2,894.

Construction was halted in mid-June as the largest flood since 1951 came down Rattlesnake Creek. Severe flood damage resulted especially to parts of the main canal completed in 1964 with the effect that water could not be diverted to several of the units without further damage to the installations. Repairs to flood damage are expected early in 1966.

Electric fences were placed and maintained to protect construction areas from livestock. One and one-half miles of new boundary fence were constructed along the west side of Tract 56 and the north side of Tract 65. A half mile of interior pasture fence was also constructed.

The IHC 350 farm tractor received in 1964 from surplus was overhauled and brought up to E-1 condition.

An extension was put on the flue at farming sub-headquarters. This anti-down draft flue extension has solved a longstanding (since 1958) problem with the heating system of this building and objectionable fumes are no longer a problem.

Three-eighths of a mile of newly bladed-up sand roads serving refuge headquarters received a four inch coat of surfacing. The surfacing material consists of fine gravel, coarse sand and clay which is fairly effective in stabilizing the fine sand of this area. Were coarse gravel used, it would be soon lost in the fine sand.

A new 1,350 bushel steel bin was erected to better care for wheat prior to shipment to other refuges and to provide mouse-proof storage for Soil & Moisture grass seed. We now have three of these storage bins and are better able to provide separate storage for the various varieties of seed wheat, i.e. Wichita, Bison, Triumph, etc.

A 175 watt mercury vapor light with photo-electric switch was installed in the headquarters area.

We have solved the problem of vapor locking in the Dodge 4x4 weapons carrier received from army surplus. This shortcoming in this otherwise valuable piece of fire fighting equipment was remedied by removing the vacuum fuel pump and installing a \$16 electric fuel pump. We have had no further difficulty with this equipment.

Shock absorber units were installed in the steering linkage of the Jeep and Dodge power wagon 4WD units and have relieved the "shimmy" problem as well as making driving over rough terrain much safer. These shock absorber units cost about \$15 each.

Considerable assistance was given to Regional Office engineering personnel in the supervision of refuge construction.

B. Plantings.

3. Upland Herbaceous Plantings. Planted 235 acres of retired agricultural land to a mixture of 1/2 lb. weeping love, 1 lb. sand love and 1 1/2 lb. blackwell switch grasses to the acre. Seven hundred fifty acres were mowed to facilitate the growth of these and previous S&M grass plantings.

4. Cultivated Crops. The 500 acre 1964-65 wheat allotment was utilized by farming 150 acres to wheat with refuge equipment and 350 acres under Cooperative Farming Agreements. This resulted in 2,700 bushels of wheat in refuge bins at the end of the 1965 wheat harvest. During the 1964 goose season farming unit 12, a cooperatively farmed unit, received such heavy goose use on the wheat strips that about 15 acres of wheat were destroyed by wind erosion in the spring of 1965. Field 46 was also very popular with browsing geese in the fall of 1964 and the spring of 1965.

The allotment for the 1965-66 wheat year was again 500 acres of which 350 acres went to the cooperative farming program. The refuge staff planted 200 acres to wheat of which 50 acres are to be turned under as green manure after the geese have finished with it. Again in the fall of 1965 the geese made damaging use of farming unit 12; however a mid-December snow cover may have saved it from severe damage. With the snowfall use on this field was reduced from over 4,000 birds per day to fewer than 1,000 as the flock dispersed into smaller feeding flights in various directions. Fields 31 and 46 received excellent use on both planted and volunteer wheat as did field 36 which had volunteer wheat only. All wheat plantings on the refuge received some use.

363 acres were farmed to grain sorghums under cooperative agreement with one-third of this crop left standing in the field for wildlife use. Due to flooding conditions at planting time, only 38 acres of grain sorghums were farmed by refuge personnel. Farming unit 12 received the heaviest waterfowl use on grain sorghums. Units 39, 41 and 42 were 75% utilized by crows as a large crow roost developed in that area. As most of our waterfowl habitat is presently in the southern part of the refuge, grain sorghum fields in the southern part of the refuge received heaviest use by waterfowl. All refuge farmlands were heavily used by upland game species and song birds.

Elbon rye was touted to me as a good cold weather producing browse plant. Eight acres of this rye were planted near Unit 5. Acceptance by geese has been excellent. A larger planting is planned for next year.

As usual, approximately 1/3 of the refuge agricultural land was fallowed in our crop rotation plan.

C. Collections and Receipts.

Cooperatively farmed wheat of the 1964-65 year brought 1,505 bu. to the refuge bins while refuge farmed wheat added 1,195 bu. None of the refuge farmed grain sorghum was harvested and 1/3 (estimated 2,178 bu.) of cooperatively farmed sorghums were left standing in the fields for wildlife use. Refuge share of harvested alfalfa seed was 1,190 lb. Three hundred pounds of weeping love and five hundred pounds of blackwell switch grass seed was purchased for the S&M program.

D. Control of Vegetation.

No chemical control was carried out on vegetation this period although a plan for basal cut and chemical treatment of escaped Russian Olive, Freemont Cottonwood and Tamarisk has been approved for the winter of 1965-66.

Mechanical control was applied to 750 acres of S&M grass plantings. This acreage represents total acres mowed; the acres of grass covered will not amount to this total as some areas required more than one mowing during the summer. Mowing was accomplished from May through September in order to reduce weed competition and conserve moisture. Also each side of five miles of road was mowed twice during the summer to increase visibility and increase the width of the road as a fire break. Field mowing by refuge personnel was done with a seven foot cut Servis mower behind a farm tractor. Contract field mowing and refuge roadside mowing was by side sickle on farm tractors.

E. Planned Burning.

None.

F. Fires.

We were lucky.

IV. RESOURCES MANAGEMENT

A. Grazing.

The dry 1964 season put us in poor shape for the beginning of 1965 grazing. Because of this we lowered our C.Y. 1965 AUM's to 2,782 (compared to 2,965 for C.Y. 1964). A survey of local grazing fees justified our raising the Quivira rate to \$2.25/AUM. This increased our revenue from the \$5,930.00 of 1964 to \$6,259.00. All cattle were removed from refuge pastures at the end of the season (Sept. 30) with the exception of one permittee who traditionally obtains a permit beginning and ending two weeks late.

B. Haying.

Permittee hay harvest was completed on schedule and was considerably lower than last year's crop in spite of the abundant moisture. 575 acres (same as last year) gave a yield of 672.2 tons compared to last year's 887.3 tons. The total revenue was \$1,075.13. Demand for hay was relatively strong.

C. Fur Harvest.

None.

D. Timber Removal.

None.

E. Commercial Fishing.

None.

F. Other Uses.

None.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report.

A refuge herbarium is in the process of development along with a botanical study of the refuge. This has been the Student Trainee project so far, and as this year we had no trainee, we have no progress to report.

VI. PUBLIC RELATIONS

A. Recreational Use.

Recreational areas have yet to be developed on the refuge, so this use is limited to drive-through tours. The majority of our sightseers are local residents stopping to observe concentrations of feeding birds. A number of "tourists" are returning nimrods stopping to gaze wistfully at feeding concentrations of birds on refuge wheat near the road. One hunter commented that he had permission to hunt a heavily used refuge area. Seems the cooperative farmer who worked the area had told the hunter it was "fine with me if you hunt there". At any rate, the hunter was familiar with the area and didn't try to take advantage of the "permission".

Our winter concentration of eagles prompted several small local groups to drive out for a look at our national bird, and a local TV showing of Bambi encouraged a few parents to bring their tots by to observe Bambi's cousins. The deer herd also attracted several sportsmen desirous of familiarizing themselves with the animal before

setting forth on the first Kansas deer hunt in over 50 years. There was the usual flurry of comments from the distaff side concerning the cruelty of anyone who could kill those cute little things. We sometimes wonder if hunters should hire a public relations firm to present their side of the argument and counteract the effect of Walt Disney and Daktari.

Continued dike and canal construction, especially along one of our paved through highways, drew a few "touristers" to see what sort of creature is doing the digging.

B. Refuge Visitors.

Following is a list of official visitors. Not listed are those with business of a recurring nature such as the local GMA, State Game Protectors, etc.

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
1/19	Howard Rabone	Br. of Realty	Land Acq.
	Leo Hosenfeld	"	"
2/17	Phil Morgan	Br. of Refuges	Courtesy
3/1	Charles Cadieux	RO, Albuquerque	Refuge Leaflet
3/23	Truman Fergin	RBS, Tulsa	Desalinization
	Alfred Hill	"	of
	Marcus Nelson	Br. of Refuges	Arkansas
	Francis V. Olson	Br. of Engineering	River
4/29	Don Redfern	RO, Albuquerque	Planning
	Bill Stabler	"	
5/13	Roland J. Schaar	CO, Washington	Land
	Ray St. John	RO, Albuquerque	Appraisal
5/17	Austin Beard	RO, Albuquerque	"
5/18	Elmer Nitzchke	USDI Attry	Land
	Clarence Malone	Asst. US atty.	Acquisition
	Roland Schaar	Realty, CO	Meeting
	Ray St. John	Realty, RO	
	Austin Beard	Realty, RO	
6/6	Ray St. John	Realty, RO	Hearing
7/29	Lynn Greenwalt	Refuges, RO	INspection
9/10	Howard Rabone	Realty, RO	Acquisition
9/14	Ernest Morris	Engineering, RO	Construction
	Tom Martinez	"	INspection
9/20	Tom Reed	Engineering, CO	Construction
	Tony Opstedal	Engineering, RO	Inspection
10/1	Austin Beard	Realty, RO	Land Acq.
11/3	Terrence Merkle	Fisheries Service	Fisheries
			Survey
11/4	Ray St. John	Realty, RO	Land Acq.
	T. M. Conrardy	" "	Pre-Hearing
	Howard Rabone	" "	
	Elmer Nitzchke	USDI Attry.	
11/30	Rollin Hornbuckle	Realty, RO	Rental Survey

C. Refuge Participation.

Throughout the year 31 groups were reached for a total of 1,704 people. These break down as follows:

<u>Refuge Tours</u>	<u>No. of Tours</u>	<u>People</u>
Schools and Youth Groups	6	87
Civic Groups	3	70
Total	9	157

<u>Films & Programs</u>	<u>No. of Programs</u>	<u>People</u>
Schools and Youth Groups	9	963
Church Groups	4	158
Civic Groups	9	426
Total	22	1547

D. Hunting.

No hunting areas have been opened on the refuge to date. However the refuge has made a big impact on local waterfowl hunting, especially as to quality of hunting for the unattached hunters. A good number of hunters still chase the geese; pawing at the refuge fence until a flight of birds go out to feed. Then try to follow the geese by car to feeding fields and sneak the birds in open fields or flush them over their hunting partners. Results from this type of hunting is not spectacular although one local hunter is quite good at it. Mostly it just furnishes a lot of sport (if you call it that) for a lot of hunters. For the first time almost all of the wheat fields just outside the south side of the refuge were leased for goose shooting. When the geese went out, these were the most successful hunters. As most of this goose season consisted of "Blue Bird" weather, the geese did not often stray from the refuge. On occasions of foggy or stormy weather the geese would "feed out" and hunters in wheat field pits were successful on such days. It is estimated the refuge area goose kill was 175 birds as compared to 400 birds in 1964. The reason for the difference was the weather. Water conditions throughout this part of Kansas were very good for waterfowl hunting. Late in the season it was no trick at all to pick up a mallard from a milo field, or field pothole or along the creek but relatively few hunters bothered for the one bird.

Pheasant hunting around the refuge saw some improvement over last year but at best was only fair. Bobwhite hunting was something else altogether. I can give an unqualified testimonial the quail hunting in northeast Stafford County, Kansas was the best I have ever experienced.

Although there was a good dove population in the area during the first part of the season, plentiful watering sites precluded good hunting around water holes. Few people in this area hunt doves when they are scattered in feeding fields.

To my knowledge only one bow hunter hunted deer along the perimeter of the refuge and he was unsuccessful. Two or three deer were taken by bow hunters along the Arkansas River northeast of the refuge.

E. Violations.

The fact that the refuge is not yet open to hunters would lead one to believe that we would have a long list of violators. However, this is not the case. The greater part of our violations are by hunters who stand on the refuge side of the road (ownership line runs through the center of the road) while waiting for birds to fly out. Although this is technically a violation we feel that we create more friends by informing them of their violation - a'la courtesy warning - than in trying to haul them into court. We have yet to find a repeater following this pattern. Such was not the case with Mr. Herb Stratton of McPherson, Kansas. Mr. Stratton was apprehended well within the refuge with a "shotty gun" and cock pheasant. His vehicle was parked within 50 yards of a refuge sign and his tracks indicated that he crossed the fence within 50 feet of the same sign. At any rate, Mr. Stratton paid \$50.00 in Federal court for his recreational activities and still did not enjoy the tasty bird. Well, it was an old, tough cock, anyway. A few spent shotgun hulls were picked up along the roadsides, but the shooters thereof were never found.

F. Safety.

Regular safety meetings were held discussing material from Regional and Bureau safety publications, their application to local problems, and strictly local problems not discussed in the publications. Round-table sessions usually followed these formal talks and many interesting and useful points were brought out. One lost time accident hit us this year. Maintenceman Miller tangled with a table saw and came out on the losing side. Mr. Miller was ripping a board and reached with his left hand to steady the end of the board coming from the saw. Somehow, the saw caught the board and jerked it, along with his hand, back into the blade. Several fingers were severely slashed and one was nearly severed. Good needle work by the doctor put the fingers back into working condition with very little stiffness - except in cold weather when the scar tissue aches.

VII. OTHER ITEMS

A. Items of Interest.

Acquisition, started in 1956, has almost been completed. Tracts 5, 95 and 96 are under contract for purchase (1,120 acres); Tracts 8, 8a, 13 and 15 are scheduled for the next condemnation hearing (1120a.);

the balance of the area either has been posted or we are awaiting instructions for posting as from the condemnation hearing held early in Jan. 1966.

Oil exploration in the area has not been great. A new well on Tract 6a was put down near an old producer but is not near proposed waterfowl development. Some seismic work was done on the Big Salt Marsh and a well is scheduled for drilling on Tract 10 early in 1966. This well is to be two locations east of a dry hole.

Refuge Clerk Wayne E. Dale received his 10 year pin in May of this year.

This production is a joint effort of Manager and Asst. Manager who will also equally share the blame for same.

B. Photographs.

Following the NR forms.

Respectfully Submitted
February 1, 1966

Joshua J. Harman
Joshua J. Harman, Refuge Manager

Reviewed By: William J. Harman
Associate Regional Director

Date: 2/15/66

Reviewed By: _____

Date: _____

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Quivira National W/L Refuge, Stafford, Kansas

MONTHS OF January TO April, 1965

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	2960	3957	4020	4250	5000	5291	5000	8573	10282	8335
Cackling										
Brant										
White-fronted	250	177	280	250	2000	2200	7000	9012	11456	950
Snow	3	1			6		6	4		15
Blue	1	4			6					1
Other										
Ducks:										
Mallard	65918	58651	58546	60440	58858	59070	55000	11000	12200	14423
Black					2					
Gadwall										
Baldpate	250	1500	250							250
Pintail	507	2100	575	4043	6500	7412	10000	43000	62000	33562
Green-winged teal	232								40	350
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										500
Ring-necked									25	90
Canvasback									120	200
Scaup	1								12	
Goldeneye		1			1					10
Bufflehead						2				
Ruddy									8	85
Other										
Coot:										

Int. Dup. Sec.,
Wash., D. C. 37944

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL (Continuation Sheet)

REFUGE Quivira Nat'l. W/L Refuge, Stafford, KansasMONTHS OF January TO April, 19 65

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	4274	510	2	2	2	2	2		437,234		
Cackling											
Brant											
White-fronted		145							236,040		
Snow		6							287		
Blue		2							98		
Other											
Ducks:											
Mallard	1498	1200	551	280	272	340	212		3,209,213		
Black									14		
Gadwall	518	550	216	128	126	145	83		12,362		
Baldpate	243	175	135	19	25	68	75		19,180		
Pintail	2449	2150	319	97	145	152	82		1,225,651		
Green-winged teal	1207	1250	356	72	106	354	271		29,666		
Blue-winged teal	1		12	838	835	1009	1105		26,660		
Cinnamon teal											
Shoveler	358	375	266	1598	2322	1899	2124		62,594		
Wood											
Redhead	2061	2500	269	28	51	4			37,891		
Ring-necked	61	85	5		23				2,023		
Canvasback	76	80		14					3,230		
Scaup	555	615	521	165	14	80	36		13,993		
Goldeneye	14	35	2	2					455		
Bufflehead	103	95	131	3	62	16			2,884		
Ruddy	37	50	1	75	179	98	444		6,839		
Other											
Coot:			50	1400	1191	1725	488		33,978		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	673,659	21,738	
Ducks	4,652,595	74,395	
Coots	33,978	1,725	

SUMMARY

Principal feeding areas Green wheat fields and milo

grain fields on and adjacent to the Refuge

Principal nesting areas _____

Reported by _____

Joshua J. Harman, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Quivira Nat'l. W/L Refuge

MONTHS OF May TO August, 19 65

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	166	64	114	103	319	324	310	290	260	137
Black										
Gadwall	17	81		20	29	12	8	6		4
Baldpate	58	39	33		2					
Pintail	171	5	16		22	2				
Green-winged teal	253	30				4				
Blue-winged teal	1638	706	1169	700	948	1112	1120	1075	1025	984
Cinnamon teal				1	1					
Shoveler	1670	433	166	121	135	145				
Wood										
Redhead		13		2						
Ring-necked		2								
Canvasback										
Scaup	6	8	9		11	10				
Goldeneye										
Bufflehead										
Ruddy	14					10				
Other										
Coot:	380	119	18	26	70	154	75	60		

3 -1750a

Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Quivira Nat'l. W/L Refuge MONTHS OF May TO August, 1965

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production :Broods:Estimated : seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	175	200	186	225	280	326	470		27,853	6	100
Black											
Gadwall							20		1,379		
Baldpate					12		19		1,131		
Pintail							303		3,633		
Green-winged teal									2,009		
Blue-winged teal	990	1010	1098	1050	1039	1221	1262		127,029	27	800
Cinnamon teal									14		
Shoveler									18,690		
Wood											
Redhead									105		
Ring-necked									14		
Canvasback											
Scaup									308		
Goldeneye											
Bufflehead											
Ruddy									168		
Other											
Coot:			63				27		6,944	5	84
				(over)							

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	:	:	:	Principal feeding areas
Geese	none	none	none	Wheat & milo fields, flooded areas.
Ducks	182,333	3,993	900	Principal nesting areas
Coots	6,944	380	84	
Reported by J. J. Harman, Refuge Manager				

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Quivira National Wildlife Refuge, Stafford, Kansas

MONTHS OF September TO December, 1965

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada						338	109	484	450	693
Cackling										
Brant										
White-fronted						153	81	408	56	72
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	1047	882	590	763	443	2270	1996	4961	4910	2619
Black										
Gadwall	153		18	65	4					545
Baldpate	57	50	427	115	86	237	284		234	130
Pintail	2405	1741	385	868	556	1263	1011	300	4434	1006
Green-winged teal	1					67	218	6249	7212	13005
Blue-winged teal	2973	2470	950	1208	1650	2587	5927	5106	199	
Cinnamon teal										
Shoveler				71						350
Wood										
Redhead			34				33	785	74	1832
Ring-necked										200
Canvasback										50
Scaup								750		
Goldeneye										
Bufflehead										
Ruddy	3		2				47	24	34	150
Other										
<u>Coot:</u>			55	51		1818	2110		300	1100

3 -1750a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Quivira National Wildlife Refuge, Stafford, Kansas

MONTHS OF September TO December, 19 65

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	2913	1106	1000	1178	1536	1637	1537	5191	253,177	
Cackling										
Brant										
White-fronted	63	32	60	67	100	75	181	191	10,815	
Snow	33							1	238	
Blue	3								21	
Other										
Ducks:										
Mallard	9166	23535	39115	13391	12920	17981	56281	58817	2,391,851	
Black										
Gadwall	1190	155	50	52	120	31	17	75	19,635	
Baldpate	1125	155	50	61	557	175			28,301	
Pintail	1116	310	25	801	261	1778	2110	2789	161,231	
Green-winged teal	3350	5786	1130	1525	2015	2100	1980	1188	311,092	
Blue-winged teal					1				161,197	
Cinnamon teal										
Shoveler	725	80	15		2				8,701	
Wood										
Redhead	3260	3535	790	2200	1500	1505	1175	901	123,389	
Ring-necked										
Canvasback	1	1							385	
Scaup	920								11,690	
Goldeneye	1			6		1	13	18	291	
Bufflehead		85	65		130	3		11	2,058	
Ruddy	175	50	20		15				3,850	
Other Comm. Merganser		25	10		185	81	185	87	1,221	
Coot:	712	175	65						111,912	
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	264,551	5,389	
Ducks	3,264,198	63,889	
Coots	44,912	2,110	

SUMMARY

Principal feeding areas Green wheat fields and milo
stubble fields on and adjacent to the refuge.

Principal nesting areas _____

Reported by _____

Joshua J. Harman, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Quivira NWR

Months of January to April, 1965

(1) Species	(2)		(3)		(4)		(5)			(6)
	First Seen		Peak Concentration		Last Seen		Production			Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Pied-billed Grebe	present	on 1/2	25	4/30	25	4/30				100
Eared Grebe	18	4/22	50	4/30	50	4/30				150
White Pelican	1000	4/7	3100	4/14	60	4/26				12000
D/C Cormorant	41	4/7	50	4/14	6	4/30				250
Great Blue Heron	1	3/24	12	4/30	12	4/30				25
Black-crowned										
Night Heron	3	4/28	3	4/30	3	4/30				10
Snowy Egret	Not observed	this period								
American Egret	Not observed	this period								
Wilson's Phalarope	4	4/24	250	4/30	250	4/30				3500
Little Blue Heron	Not observed	this period								
American Bittern	1	4/24	12	4/30	12	4/30				50
II. Shorebirds, Gulls and Terns:										
Sandhill Crane	28	2/27	580	3/10	18	4/14				10000
Greater Yellowlegs	6	4/7	100	4/30	100	4/30				500
Lesser Yellowlegs	2	3/31	35	4/21	20	4/30				200
American Avocet	1	4/24	50	4/28	50	4/30				200
Ring-billed Gull	20	1/1	20	1/1	6	4/30				50
Franklin's Gull	1	3/17	1500	4/30	1500	4/30				5000
Killdeer	8	3/17	300	4/28	300	4/30				600
Common Snipe	2	4/27	30	4/28	5	4/30				400
Baird's Sandpiper	6	3/2	250	4/28	250	present				750
Snowy Plover	Not observed	this period								
Long-billed Curlew	2	4/9	6	4/14	6	4/14				25
Willet	2	4/14	5	4/27	5	4/30				15
Hudsonian Godwit	4	4/14	12	4/27	3	4/30				50
Upland Plover	3	4/21	12	4/30	12	4/30				30

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove *	2	3/17	500	4/30	500
White-winged dove					4/30
*None noticed during winter					
IV. Predaceous Birds:					
Golden eagle	1	1/1	4	1/26	1
Duck hawk					3/3
Horned owl	30	in residence			
Magpie					
Raven					
Crow	50	1/1	500	3/17	125
Bald Eagle	54	1/1	54	1/1	1
Sharp-shinned Hawk	8	1/1	25	3/17	1
Cooper's Hawk	present		40	resident	
Swainson's Hawk	1	4/6	20	summer resident	
American Roughleg	2	1/1	4	3/1	1
Prairie Falcon	2	1/1	3	3/10	1
Marsh Hawk	2	1/1	8	4/30	8
Mississippi Kite	1	4/30	1	4/30	1
Reported by					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Quivira NWR

Months of May, to August, 1965

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
White Pelican		Present	15	5/5	15	5/5				45
Great Blue Heron		Present	69	8/25	Present					105
Y/C Night Heron	1	6/22	2	8/25	1	8/28				3
B/C Night Heron		Present	3	8/28	3	8/28				6
L. B. Heron	1	7/21	2	8/13	1	8/28				7
Am. Bittern		Present	12	7/28	Present					15
Wilson's Phalarope		Present	485	5/12	15	5/20				3200
Glossy Ibis	2	8/28	2	8/28	2	8/28				2
Green Heron	1	7/8	3	7/28	1	8/25				4
Sora	1	8/18	3	8/25	1	8/30				8
Am. Egret	9	8/13	9	8/13	1	8/25				17
D/C Cormorant		Present	5	5/5	1	5/27				12
Hared Grebe		Present	20	5/12	2	8/25				39
II. Shorebirds, Gulls and Terns:										
Snowy Plover		Present	91	7/28	10	8/25			24	117
Greater Yellowlegs		Present	217	8/25	Present					550
Lesser Yellowlegs		Present	198	8/25	Present					500
Am. Avocet		Present	119	6/2	Present				30	213
Franklin's Gull		Present	75	5/19	3	7/14				109
Ring-billed Gull		Present	56	7/2	Present					75
Killdeer		Present	78	8/28	Present				12	118
Dowitcher	13	7/8	27	8/6	3	8/25				178
Upland Plover		Present	12	8/13	Present				3	31
Black Tern		Present	179	6/16	Present					200
Least Tern		Present	153	6/2	17	8/25			25	178
Common Tern		Present	29	6/16	11	8/13				75
Willet	1	6/9	1	6/9	1	6/9				2

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Present	3,300	8/25	Present	600 4,200
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Sparrow Hawk Marsh Hawk Swainson's Hawk Mississippi Kite Red-tailed Hawk	Resident Resident Present Present Present 3 6/8 Present	 25 2 32 14 2	 5/5 8/25 8/25 8/11 7/13	Present Present Present Present Present Present	 4 20 25 75 33 4 65 6 22 2
Reported by <u>L. J. Harman, Refuge Manager</u>					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

Form NR-1A
(Aug. 1952)

Refuge ~~Quinn~~ Nat'l. W/L Refuge Months of September to December, 19 65

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
White Pelicans	75	9/8	3000	9/21	72	11/10				8,000
Great Blue Herons	69	9/1	97	9/21	9	12/29				150
Yellow-crowned N. Heron 2		9/1	2	9/8	2	9/8				2
B/C Night Heron	30	9/1	30	9/1	7	12/6				75
Little Blue Heron	1	9/1	5	9/15	5	9/15				2
American Bittern	5	9/1	12	10/6	1	10/27				50
Glossy Ibis	2	9/1								2
Green Heron	1	9/1	2	9/15	1	10/6				6
Sora	15	9/1	250	9/28	1	10/6				1000
American Egret	1	9/1	5	9/21	1	9/29				6
Double Crested Cormorant 55	10/6		55	10/6	3	11/25				150
Bareed Grebe	3	9/1	36	10/27	5	12/15				100
Pied-billed Grebe	7	9/1	7	9/1	3	9/15				30
II. Shorebirds, Gulls and Terns:										
Snowy Plover	Present		100	9/21	8	10/27				300
Greater Yellowlegs	Present		230	9/1	5	11/3				500
Lesser Yellowlegs	Present		150	9/1	2	10/27				450
American Avocet	Present		100	9/1	1	11/3				200
Franklin's Gull	30	9/1	100,000	10/20	9	12/22				500,000
Ring-billed Gull	Present		795	12/29	795	12/29				1,000
Killdeer	Present		100	9/1	25	12/29				500
Dowitcher	Present		175	9/1	5	10/27				1,000
Upland Plover	Present		25	9/1	1	10/6				175
Black Tern	Present		150	9/1	15	9/29				500
Least Tern	Present		20	9/1	6	9/15				50
Black-bellied Plover	3	9/1	35	9/15	35	9/15				150
Sandhill Crane	15	10/20	700	10/23	7	12/29				6000
Whooping Crane	3	10/30	3	10/30	3	10/31	(only one family observed)			3
Common Snipe	3	9/15	250	12/1	1	12/15				1000

(over)

(1)	(2)	(3)	(4)	(5)	(6)		
III. <u>Doves and Pigeons:</u>							
Mourning dove	3000	9/1	3000	9/1	15	12/29	4000
White-winged dove							
IV. <u>Predaceous Birds:</u>							
Golden eagle	1	12/22	1	12/22	1	12/22	3
Duck hawk							
Horned owl	20	Resident					20
Magpie							
Raven							
Crow	75	Present	125,000	11/24	10,000	12/29	150,000
Bald Eagle	4	10/27	31	12/29	31	12/29	50
Short-eared Owl	4	10/27	25	12/29	25	12/29	350
Sparrow Hawk	25	9/1	125	10/20	15	12/29	200
Marsh Hawk	1	9/22	30	12/1	20	12/29	75
Swainson's Hawk	30	9/1	30	9/1	1	11/1	30
Red-tailed Hawk	2	9/1	11	12/15	6	12/29	25
Rough-legged Hawk	2	11/24	10	12/29	10	12/29	23
Prairie Falcon	1	11/24	2	12/29	2	12/29	3
Ferruginous Hawk	1	12/15	3	12/23	3	Reported by	10

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750b

Form NR-1B

(Rev. Nov. 1957)

UNITED STATES

DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITATRefuge Quivira NWR

For 12-month period ending August 31, 1965

Reported by J. J. HarmanTitle Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production	
	Type	Acreage				
A	Crops	260	Ducks	6,912,766	100	50
	Upland	1220	Geese	766,024		
	Marsh	140	Swans			
	Water	640	Coots	19,971	5	10
	Total	2560	Total	7,698,761	105	60
B	Crops	23	Ducks	140,301	15	10
	Upland	822	Geese			
	Marsh	90	Swans			
	Water	25	Coots	119	2	1
	Total	960	Total	140,420	17	11
C	Crops	850	Ducks	1,000,323	375	100
	Upland	3810	Geese	20,195		
	Marsh	80	Swans			
	Water	60	Coots	1,722	20	30
	Total	4800	Total	1,222,240	395	130
D	Crops	700	Ducks	1,008		
	Upland	1840	Geese	2,835		
	Marsh	20	Swans			
	Water		Coots			
	Total	2560	Total	3,843		
E	Crops	410	Ducks	29,827	75	40
	Upland	3620	Geese	25,200		
	Marsh	80	Swans			
	Water	50	Coots			
	Total	4160	Total	55,027	75	40
F	Crops	1700	Ducks	200,368	525	100
	Upland	1700	Geese	93,513		
	Marsh	3940	Swans			
	Water	720	Coots	21,224	25	40
	Total	5360	Total	315,015	550	140
G	Crops	160	Ducks	245		
	Upland	1380	Geese			
	Marsh	40	Swans			
	Water	20	Coots			
	Total	1600	Total	245		

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Quivira Nat'l. W/L Refuge Months of January to April, 19 65

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Marshes, brush, shelterbelts, fence- rows, wildplum thickets, willow thickets, tall- grass prairie lands	11			50-50				2,000	
Bobwhite	" " "	8			50-50		55		2,750	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752

Form NR-2

(April 1946)

UPLAND GAME BIRDS

Refuge Quivira NWR, Stafford, KansasMonths of Mayto August

, 1965

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Marshes, brush, shelterbelts, fence rows, wild plum thickets, willow thickets, tall prairie grass	7.6	12	11,400	50-50				2,900	
Bobwhite	-do-	5.9	17	2000	50-50				3,750	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

(April 1946)

UPLAND GAME BIRDS

Refuge Quivira Nat'l. W/L Refuge

Months of September to December, 19 65

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Marshes, brush, shelterbelts, fence rows, wild plum thickets, tall-grass prairie lands	7.8			50-50				2750	
Bobwhite		6.0			60-40				4000*	
* Increase due to re-evaluation since birds have covered and are more readily seen.										

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Quivira Nat'l. W/L Refuge Calendar Year 1965

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												
White-tailed Deer	Shelterbelts, tall prairie grasses & timber claims	25										75	75	60-40

Remarks:

Reported by Joshua J. Harman, Refuge Manager

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Quivira Nat'l. W/L Refuge Year ending April 30, 1965

(1) Species	(2) Density	(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion		
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Opossum	Upland woods & range 15,000 acres	100												150
Raccoon	22,000 acres	175												125
Mink	Streams & Marshes 10,000 acres	500												20
Skunk	22,000 acres	100												220
Badger	Upland sandhills 6,000 acres	200												30
Coyote	22,000 acres	440												50
Black tail	Upland pastures													
Prairie Dog	100 acres	.8												125
Fox Squirrel	Shelter Belts, 100a	1												100
Beaver	Rattlesnake Creek	4.5												10
Black tail	Upland Range													
Jackrabbit	15,000 acres	200												75
Cottontail	Upland Range and Shelter- belts, 18,000 acres	4												4500
Muskrat	Ponds, 500 acres	50												10
Weasel	Streams & Marshes 10,000 acres	750												13

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by Joshua J. Harman, Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- | (2) | (1) | (2) | (3) | (4) | (5) |
|-----|----------------------------|--|-----|-----|-----|
| | SPECIES: | Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.) | | | |
| | DENSITY: | Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. | | | |
| | REMOVALS: | Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed. | | | |
| | DISPOSITION OF FUR: | On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided. | | | |
| | TOTAL POPULATION: | Estimated total population of each species reported on as of April 30. | | | |
| | REMARKS: | Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested. | | | |

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Ordvira Nat'l. W/L Refuge, Stafford, KansasCalendar Year 1965

1. Visits

a. Hunting None b. Fishing None c. Miscellaneous 1110 d. TOTAL VISITS 1110

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game			
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to _____

refuge 1000

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		

1c. Miscellaneous Visits

Recreation 910 Official 75
 Economic Use 100 Industrial 25

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs	1	62		
Bird and Garden Clubs	1	5	3	40
Schools	1	35	3	567
Service Clubs			7	275
Youth Groups	1	32	6	421
Professional-Scientific	3	46	1	130
Religious Groups	1	15	2	82
State or Federal Govt.				
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	37	Radio Presentations	
Newspapers (P.R.'s sent to)	4	Exhibits	
TV Presentations		Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Quivira Nat'l. W/L Refuge, Stafford, Kans. Year 19465

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
Sand Lovegrass Weeping Lovegrass Blackwell Switch grass	Tracts 17 & 71	#3/acre	235 acres	120# weeping love 240# sand love 360# switch	March & April	Poor to Fair	Dry weather during summer	Planted to establish grass stands & rebuild existing pastures.

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....
Hedgerows, cover patches.....
Food strips, food patches.....
Forest plantings.....

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Quivira National Wildlife Refuge County Stafford State Kansas

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Winter Wheat	262.6	4515 bu.	87.5	1505 bu			350	525 a. winter wheat available for browse. 25 a. to be turned under for green manure	525
Winter Wheat(gov't)			150	1195 bu			150		
Milo	242	4356 bu.			121	2178 bu.	363		
Milo (gov't)					38	380 bu.	38		
								Fallow Ag. Land	535

No. of Permittees: Agricultural Operations 5 Haying Operations 9 Grazing Operations 16

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa	44.5	55	\$133.50	1. Cattle	557 552	2782 2757	6259.50 \$6203.25	4600
				2. Other				
				1. Total Refuge Acreage Under Cultivation				1320
Hay - Wild	627.7	520	\$941.63	2. Acreage Cultivated as Service Operation				445

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1570
NR-8a
(4/54)

REFUGE GRAIN REPORT

Refuge Quivira Nat'l. W/L Refuge, Stafford, Kansas

Months of January through December, 19565

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Winter Wheat	149 bu.	2700 bu.	2849 bu.	1674 bu.	225 bu.	875 bu.	2549 bu.	300 bu.		300 bu.	none
Mixed Grain, milo and corn received from Kirwin NWR		150 bu.	150 bu.			150 bu.	150 bu.	none			

(8) Indicate shipping or collection points _____

(9) Grain is stored at Refuge Headquarters bins

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

Agency	Grain Received On Hand	Grain Received	Total	Grain Disposed of				Grain On Hand	Proposed or Estimated Use		
				Grain	Seed	Feed	Other		Feed	Seed	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

REFUGE GRAIN REPORT

3-1759
Form NR-9

COLLECTIONS AND RECEIPTS OF PLANTING STOCK
(Seeds, rootstocks, trees, shrubs)

Refuge Quivira Nat'l. W/L Refuge, Stafford, Kansas Year 19465

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
Alfalfa (Kansas Common)	1190#	Sept. 1965	Combine	N/C Share Crop			2280 lb.	1000 lb.
Weeping Lovegrass				\$1.80/lb.	300 lb.	Open Market		
Switchgrass				.65/lb.	500 lb.	Open Market		
Hybrid Milo Seed				.20/lb	400 lb.	Open Market		

Traps, Too, Await Teal

Quivira Refuge Aids In Study

By Clelland Cole

As blue wing teal move into Kansas this fall, they will receive a harsh reception at the hands of duck hunters, in the first special teal season for Kansas.

They will also find duck trappers awaiting their arrival.

At the 15,400 acre Quivira game refuge in northeast Stafford county, a duck trap is already in operation, and ducks caught in it are being banded and set free, as part of the continuing study of hunter kills, migrations, and habits of waterfowl.

The trapping operations at Quivira include blue wings and some had already been taken, banded, and loosed in mid-August.

The ones captured thus far may be early migrants, or they may be part of this year's hatch at Quivira.

Joshua (Jim) Harman is Quivira Refuge Manager. He and Ron Sullivan, Assistant Manager, and Refuge Clerk Wayne Dale, are in charge of the operations. Their trap is built of pipe framework covered with chicken netting, placed in water about knee deep, in an area known to be favored by ducks. Wire netting wings extend outward from the main cage, angling so as to form a sort of herding arrangement for the swimming waterfowl. Long trails of grain are scattered from the trap out into the open water, forming a "chum line" directly to the trap, and into it through a funnel. Once the ducks swim through the funnel, they are caged, but of course, do not become alarmed as they continue feeding and so decoy more ducks into their immediate neighborhood so that first thing you know, if the trapping goes well, ducks attack the submerged smorgasbord in delight. When, however, two legged critters loom on the horizon, concern over getting the heck out of there increases in an inverse ratio as the distance between oncoming trappers and the trap decreases. By the time the duck trappers get to the cage ducks are making violent take-offs into the netting, or diving beneath the water, poking their heads through the wire mesh, sometimes getting fouled up under the surface and raising merry old



Ron Sullivan, assistant refuge manager at Quivira, looks over largest expanse of water in refuge. It is supplied by Rattlesnake Creek, and retaining structures and gates control flow of water.



Wayne Dale holds blue-wing teal—all banded and ready to show her boyfriend her new bracelet, complete with zip code. Blue-wing can really zip, too, as any duck hunter can tell you.

Ned, generally.

Several In Traps

This scribe accompanied Dale and Sullivan to the trap. They entered, started catching ducks, clamping the light aluminum bands on them, and turning them loose. The catch that day included mallards, gadwalls, a sprig and some blue wing teal. As we approached the trap, we observed that several ducks were paddling around outside the trap, doubtless checking weather conditions inside and



Story is in this emblem. Quivira is under Department of Interior, Bureau of Sports Fisheries and Wildlife.

giving the trapped birds the old quackety-quack hee-haw as they, the untrapped ones, winged away.

Clamping that little band on a flapping, energetic duck's leg is a shade more complicated than whittling. The trappers are, first of all, conservationists, and they have no wish to break a wing or a leg of a trapped bird. And so as one man holds the duck and gets the bird's leg stretched into position, the other man

(Continued On Page 27)

Traps, Too, Await Teal

(Continued From Page 7)

takes a band from his generous supply, and with some wide-jawed pliers, clamps it down, just so.

The trap is L-shape, about five feet in height and about the same breadth with each leg of the L about twice that length.

Information from the banding operations ends up at a Refuge at Laurel, Maryland, where the Bureau of Sports Fisheries and Wildlife gleans information and knowledge. This year the interest in early season banding in Kansas is keen because of the special teal season. The first such banding schedule at Quivira comes in the year of the first special teal season.

Later in the year other ducks and geese, too, will be caught and banded, but the catching will be done by use of cannon nets instead of by use of the trap. The mesh of the cannon nets is large enough that teal, enveloped in it, would promptly find their way out and be long gone.

Harmon said hunters with permits to take teal during the early September season should keep a record of the number of teal they kill, since questionnaires



Dale and Sullivan take care not to injure duck as they band it.

will be sent to most of them.

He added that they should promptly turn in any leg bands taken from banded teal they kill.

Started In 1956

Quivira came into being with the first purchase of land in 1956. Wayne Dale has been at Quivira since 1957; Harman has been manager since 1957 and Sullivan has been there for about a year and

a half. A new headquarters building has been completed, new residences have been completed for the manager and his assistant, and at present the program of completing the headquarters is under way.

"We hope we can help come up with pertinent answers about teal—we hope we can contribute something to the study of them," remarked Sullivan. There's this about it—they're trying.



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poor, the much blessed, and the near naked, all clamor to the water's edge to take part in the ceremonies of the cult. From dawn until sunset, the would-be dark-complexioned hordes pomade themselves and each other with odiferous miracle oils that makes them eligible to belong. Deep, mahogany is the ultimate goal of each. While I know little of the actual rules of the group, observation has taught me that the most successful anointing is done by a female on a male, or vice versa. Excepting in those instances where the candidates are man and wife. I have seen some pretty violent reactions from a mere application of the smelly concoction.

While some of the dispensers of the sweet-smelling air-defiler are to get a satisfactory browning after just a few hours in the broiling sun, and with no feverishness or suffering. But the larger percent have tender outer coverings that turn to purple damask, with indiscriminate raised patterns, after a few minutes of exposure to the rays of their sun god. For some unexplainable reason, these are the ones who are most persistent. They keep sopping sun tan oil, and each application gains substance, because it gathers small, transparent flakes of former

fice before the avenging fire of the sun god. They consider this exposure beneficial. Although reams have been written about skin cancer and its relation to over-exposure, little heed is taken of the research. Congressional findings on the cigarette were much more observed.

These displays of skin exposure on our shores are a matter of pure delight to flying insects. While the odor of repellent mingles here and there with the miracle oils, it is lost on the maze of the stronger smells. Every day is Sunday for mosquitoes.

It is a strange thing. Our country is embroiled in a hassle over that fact that dark skinned people, who are born that way, can or cannot eat at our restaurants, can or cannot sleep in our motels, can or cannot go to our public schools. The whole world knows of our derision of our black fellow-man. And yet the American public spends thousands of dollars, smears thousands of gallons of smelly goo, just trying to attain a color not unlike their natural one.

But they wouldn't, not if they couldn't reach the sacrificial altar, by riding all the way in an air-conditioned car!

Pale hands!

THE WAKITA HERALD
WAKITA, OKLA.
1/4/65

WAKITA COUPLE SEES RARE BIRD

On February 3, Mr. and Mrs. Lyle Byfield and Mrs. Blake Faulkner of Blackwell visited the Quivira National Wildlife Refuge near Stafford, Kans., to look for a Red Breasted Goose.

This extremely rare bird had been sighted there early in January and again on February 2.

With the help of Ron Sullivan, the assistant refuge manager, the Oklahoma birders found this rare bird feeding in a wheat field with other geese.

This is only the third time the Red Breasted Goose has been sighted in the U. S. Its nesting ground is the Siberian tundra and it normally winters on the Caspian Sea.

It is a small black and white goose with a red neck and breast.

The Quivira refuge is one of several areas managed by the U. S. Fish and Wildlife service. These areas are important to our future supply of ducks, geese, cranes and other waterfowl as well as other game birds and big game animals. J. J. Harman is the manager of the Quivira refuge.



A cooperative farmer's cow peas - green manure crop before wheat
produces peas and nitrogen for the soil.





Fallowed wheat strips produce volunteer wheat and volunteer
cow peas for wildlife food.





Blue wings - pre-special-teal season bracelets for the birds.



It takes three years to get such a stand of grass on Kansas blow sand.